BNL Ergonomics Bulletin

October 2001, Issue no.3

Brought to you by the Safety and Health Services Division

by: Lesliam Quirós

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The Importance of Office Ergonomics

Did you know that…

- More people work in offices in the United States than in any other work setting. (Bureau of Labor Statistics, 1995).
- 75% of all jobs require the use of a computer. (Business Week,1996).
- It is estimated that 30% of office productivity loss result from employees who suffer from workplace discomfort and stress-related symptoms.
- The office is constantly evolving in response to emerging technology and the needs of employees and customers. Today's office can be in the home, at a customer's site or at 36,000 feet in an airplane!

Our work environment is very critical. As we spend increasing amounts of time at our computer workstation, we need to be aware of how the design and arrangement of our equipment can impact our comfort, health, and productivity.

Office ergonomics is important because with the correct workstation setup we can be more productive, efficient, and best of all minimize the risk of acquiring a Musculoskeletal Disorder (MSD) that can be painful and burdensome. This newsletter will address office ergonomics and offer some tips on workstation set up and body posture. (Note: this issue will focus on sitting workstations. The next newsletter will address sit-stand and standing workstations.)

• Sitting Workstations[1,2,3]

For many of us, sitting has become a way of life. We sit in cars, buses, trains or airplanes when we travel or go to work. We sit to eat meals, we sit and watch TV, we sit in classrooms, and for many of us, we sit most of the day at work, often in front of a computer. However, no matter how harmless it may seem to sit in front of a computer and work, this activity sets the stage for cumulative trauma injuries. The situation becomes critical for those of us who sit in front of a computer for long periods of time.

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Sitting for long periods of time, can cause strain on your back, neck, and shoulders. Poor arrangement of the workstation encourages an awkward body posture and this can hinder breathing and blood circulation and contribute to injuries affecting your ability to move.

You should follow the general tips in this bulletin issue when sitting in front of your computer workstation (refer to fig 1 for items 1 thru 5). These are suggestions. You may find that another position or workstation layout is more comfortable and efficient for you. Make sure that YOU are comfortable in the set up you decide to use.

1.- Monitor:

- Should be clear of any glares either direct or indirect (see next section on "Other Factors to Consider in a Sitting Workstation" for more details). It should be placed so that the top of the screen is at or just below eye level.
- Position monitor directly in front of you to avoid excessive twisting of the neck.
- If you use a document holder, place it at approximately the same height as the monitor and at the same distance from the eyes to prevent frequent eye shifts between the monitor screen and reference materials.

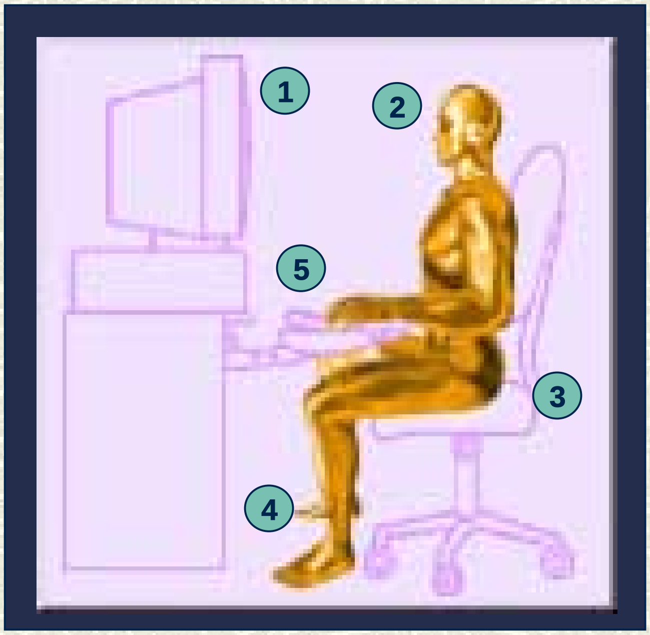

Fig.1 Sitting Workstation[3]

- Position monitors at a comfortable viewing distance, approximately 18-30 inches from the you.

2.- Chair:

- Do not stay in a static (still) position for long periods.
- Alternate between sitting and standing or take small walking breaks throughout your work day.
- Adjust height of backrest to support the natural inward curve (S shape) of the lower back. (Note: it may be helpful to use a rolled towel or cushion to support the lower back.)
- Trunk and upper legs should be at an angle between 90 and 115 degrees.
- Adjust height of chair so that your feet rest flat on the floor.

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2.- Chair (cont.):

- Arm rests should be removable and the distance between the arm rests should be adjustable.
- Do not use arm rests to slouch.
- Ensure that there is some space (2-3”) between the top of your thighs and the underside of your workstation.
- Make sure to have sufficient space under the work surface so that you can pull yourself all the way up to the edge of the desk with room for your legs and knees to fit comfortably.

3.- Feet/Foot rest:

- Feet should reach and touch the floor in a flat, relaxed manner. Foot and leg circulation will be affected if over extension of the feet occurs, as is the case when the user wears high-heeled shoes. If your feet do not lie flat on the floor when sitting properly then use a foot rest. (Note: if foot rest is not available use an object such as a binder.)

4.- Keyboard:

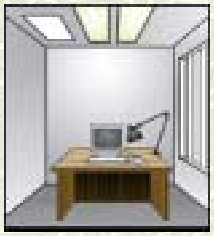
- Adjust the height so that shoulders can relax and allow arms to rest at your sides.
- Position it directly in front of you to avoid excessive overextending.
- Position the mouse adjacent to keyboard and at the same height.
- Maintain your wrist in a neutral position (straight/flat position). You can use a padded wrist rest to keep your wrist in this position and keep your arms off sharp edges on your work surface.

4.- Keyboard (cont.)

- Press keys gently and keep shoulders, arms, and fingers relaxed.

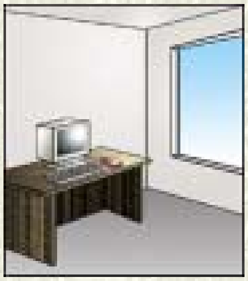
Other Factors to Consider in a Sitting Workstation:[2,3]

- Lighting/Glare:



Ever get a headache, blurred or double vision, itchy eyes? Well, it may be due to the lighting near your workstation. To reduce eyestrain and fatigue do the following:

- Avoid intense/uneven lighting
- Use indirect or shielded lighting where possible.
- Place your monitor at 90 degree angle to windows where possible.
- Use a glare screen or monitor shield to reduce glare from overhead lighting.
- Close drapes/blinds to reduce glare.
- Reduce overhead lighting wherever possible.



General Miscellaneous Tips:

* When sitting:(See Fig.1)
  - Elbows should fall naturally to the side and without lifting the shoulders, they should be form a 90 degree angle.
  - Keep the wrists straight (an angle of 180 degrees).
  - Arms should not be extended while using the mouse or the keyboard.
  - Mouse pad should be kept at the same height or slightly above the keyboard and within a 45 degree range.

***** The telephone and other desk items should be moved so that the arm and shoulder area are not hyper-extended when reaching to answer the phone. Keep everything within reach to avoid overextending.

* Room temperature should be set for your comfort. If you are not able to adjust the temperature, wear appropriate clothing (i.e. wear a jacket if cold and light clothing if hot).

* The recommended work surface space is 160cm. wide by 80 to 90cm. Deep, or a corner unit of 91 to 107 cm. deep. If height is fixed, it should be set between 72-75cm.

* Use a headset or speaker phone if answering the phone is a

frequent part of your duties.

* Your work environment should not be noisy and should be as free of distraction as possible.

* REMEMBER: DO NOT STAY IN A STATIC/STILL POSITION! TAKE PERIODIC BREAKS, STRETCH AND WALK AROUND!

⌗ *References*

1. http://www.cdc.gov
2. http://ehs.ucsc.edu/safety/ergo/vdt.html
3. http://www.3m.com
4. http://www.hp.com/ergo

If you have any questions or concerns about any of the ergonomics issues covered in this bulletin or those covered in previous ones, you may contact John Peters at Ext.7475.

On the next issue:
Office Ergonomics Part II